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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,297	03/26/2004	Luigi Tallone	36030312 US02	9276

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EXAMINER

CHIEM, DINH D

ART UNIT PAPER NUMBER

2883

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/810,297

Applicant(s)

TALLONE ET AL.

Examiner

Erin D. Chiem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 7-26 is/are pending in the application.
- 4a) Of the above claim(s) 3-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to an RCE filed on 11 July 2005. Claims 1, 2, and 9-14 and newly added claims 15-26 are pending, and claims 3-6 are canceled.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because the abstract does not summarize the invention but is merely repeating the originally presented claim 1. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 2, and 9-15, and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr et al. (US Patent 6,275,317) in view of Tabuchi (US Patent 5,481,629).

Doerr teaches an optical transmitter (100) in Figure 1 having a silicon optical bench substrate (120), (col. 4 line 54-61), and (col. 7, line 26-30), with an array of input waveguides (w1, - w6), an output fiber in the same plane (125). Interposed between the input optical fibers and output optical fibers is an optical isolator (140), the two ball lenses (155, 160) set inside pyramid-shaped pits (col. 8, line 34 – 36), and having the isolator interposed in between the two ball lenses. Regarding claim 10, Doerr et al. further explain that the optical isolator send the focused light from the collimator to the amplifier/modulator (col. 10, line 17-20). Regarding claim 11, although Doerr et al. do not explicitly show a filter in the drawings; however, in column 15, line 1-6, Doerr et al. indicate that through experimentation a 1.87 GHz electronic filter was used to produce the result shown in Figure 22 (A-J). Regarding claim 14, Doerr et al disclose using a ball lens (155, 160) to collimate and project an optical radiation. The ball lens is meets the claim of being at least one optical component comprises a symmetrical optical system having an internal image.

However, Doerr does not teach an input optical fiber coupled to a waveguide, which interposes between the input optical fiber and an optical element.

Tabuchi teaches an optical arrangement in Figure 2A having an optical waveguide optically coupled to an optical component 11. Furthermore, Tabuchi discusses optically coupling an input or output optical fiber to a flat top surface planar waveguide by using a V-groove to align the coupling (col. 3, lines 47-67 and Figure 9, 31). The purpose for coupling an optical fiber to a waveguide is for long haul transmission.

Since Doerr and Tabuchi are both from the same field of endeavor, the purpose disclosed by Tabuchi would have been recognized in the pertinent art of Doerr.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide an etched v-groove on the substrate leveled with the planar waveguide to mount the optical fiber onto for coupling with the planar waveguide. **The motivation** for coupling an optical fiber to a planar waveguide is for long haul transmission. The optical assembly, as taught by Doerr and Tabuchi, are typically known as an isolator and are well known to be used with a laser module to prevent backreflection that will destabilize the lasing. Thus one of ordinary skill in the art can appreciate the coupling of the optical fiber allows to laser module to be in a remote location and maintains optical transmission integrity via a single mode optical fiber and to transmit the signal out of the isolator to a signal receiver that is located in a remote location.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr in view of Tabuchi (refer to as Tabuchi1) as applied to claims 1 above, and further in view of Tabuchi (US 5,611,006) (refer to as Tabuchi2).

Doerr in view of Tabuchi1 discloses all the limitations of claim 1, but does not disclose having the output waveguide and the length of optical waveguide on the substrate aligned along

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an input-to output propagation path, and furthermore, the end surfaces of the optical components arrangement are offset to the perpendicular to said input-to-output propagation path, the propagation path of radiation through said through at least one optical component is at an angle with respect to the main input-to-output propagation path.

Tabuchi2 discloses arranging the incident planes of the optical-isolator in parallel with the surface of the silicon substrate and inclined by a predetermined angle relative to the main optical axis (col. 4, line 19-23) for the purpose of reducing back reflection of the optical signal along to propagating axis.

Since Doerr in view of Tabuchi1 and Tabuchi2 are all from the same field of endeavor; the purpose disclosed by Tabuchi2 would have been recognized in the pertinent art of Doerr in view of Tabuchi1.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to offset the alignment of at least one optical component in the mounting arrangement. **The motivation** would have been for reducing back reflection of the transmitted optical radiation.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr in view of Tabuchi1 as applied to claim 15 above, and further in view of Drake (US Patent 5,999,303).

Doerr in view of Tabuchi1 discloses all the limitations of claim 1, but does not disclose using optical fibers from the same fiber batch for the input and length of fiber on the substrate.

Drake discloses using input and output fibers from the same manufacturing batch having very precise lengths for both lengths of input and output fibers (col. 16, line 3-6) for the purpose of maintaining the same fiber characteristics in an optical system.

Since Doerr in view of Tabuchi1 and Drake are all from the same field of endeavor; the purpose disclosed by Drake would have been recognized in the pertinent art of Doerr in view of Tabuchi1.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use optical fibers that were drawn from the same batch in implementing on one optical system. **The motivation** for using optical fibers drawn from the same batch is to maintain the closely similar characteristics of the optical fibers such as having substantially same core index, cladding index, low level of impurities, etc.

Regarding claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doerr in view of Tabuchi1. Doerr in view of Tabuchi1 disclose all of the limitations of claim 15 and Doerr further disclose coating the output facet of the optical amplifier/modulator with TiO₂ anti-reflective coating to minimize reflections between the optical amplifier/modulator and the output fiber (Col. 10, line 27 – 30)

However Doerr does not expressly disclose applying the anti-reflective coating on the respective ends of the length of fiber and the output fiber. Since **the motivation** of applying the anti-reflective coating on the respective ends facets of amplifier/modulator or fibers is for index of refraction matching to minimize scattering of optical radiation and maximize transmission, it is obvious to coat the adjoining ends of two lengths of fibers or end facets of an amplifier/modulator connecting to a length of output fiber.

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Response to Arguments

3. Applicant's arguments with respect to claims 1, 2, and 7-14 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800